UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2004/00321

June 23, 2004

Mr. Lawrence Evans
U.S. Army Corps of Engineers, Portland District
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fisheries and Conservation Management Act Essential Fish Habitat Consultation for the Teeter Streambank Stabilization Project, Upper Grande Ronde River Subbasin. Union County, Oregon (Corps No.: 200300360)

Dear Mr. Evans:

Enclosed is a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of issuing a permit for the proposed Teeter Streambank Stabilization Project. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of Snake River (SR) spring/summer Chinook salmon (*Oncorhynchus tshawytscha*), SR steelhead (*O. mykiss*), or destroy or adversely modify designated critical habitat for SR spring/summer Chinook salmon. As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with this action.

This document also serves as consultation on essential fish habitat (EFH) pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and implementing regulations (50 CFR Part 600). NOAA Fisheries concludes that the proposed action may adversely affect designated EFH for Pacific salmon. As required by section 305(b)(4)(A) of the MSA, included are conservation recommendations that NOAA Fisheries believes will avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from the proposed action. As described in the enclosed consultation, 305(b)(4)(B) of the MSA requires that a Federal action agency must provide a detailed response in writing within 30 days after receiving an EFH conservation recommendation.

If you have any questions regarding this consultation please contact Eric Murray of my staff in the Eastern Oregon Branch of the Oregon State Habitat Office, at 541.975.1835, ext. 222.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: John Kinney, USFWS
Jeff Zakel, ODFW

Endangered Species Act - Section 7 Consultation
Biological Opinion

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Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

Teeter Streambank Stabilization Project
Upper Grande Ronde River Subbasin, Union County, Oregon
(Corps No.: 200300360)

Agency:	U.S. Army Corps of Engineers
Consultation Conducted By:	National Marine Fisheries Service, Northwest Region
Date Issued:	June 23, 2004
Issued by:	for Michael R Course D. Robert Lohn Regional Administrator
NOAA Fisheries No.:	**2004/00321**

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1. INTRODUCTION

The Endangered Species Act (ESA) of 1973 (16 USC 1531-1544), as amended, establishes a national program for conserving threatened and endangered species of fish, wildlife, plants, and the habitat on which they depend. Section 7(a)(2) of the ESA requires Federal agencies to consult with NOAA's National Marine Fisheries Service (NOAA Fisheries) and U.S. Fish and Wildlife Service (together "Services"), as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their designated critical habitats. This biological opinion (Opinion) is the product of an interagency consultation pursuant to section 7(a)(2) of the ESA and implementing regulations 50 CFR 402.

The analysis also fulfills the essential fish habitat (EFH) consultation requirements under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures to conserve EFH for those species regulated under a Federal fisheries management plan. Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (section 305(b)(2)).

The U.S. Army Corps of Engineers (COE) proposes to issue a permit, under section 404 of the Clean Water Act, for the Teeter Streambank Protection Project (Project). The administrative record for this consultation is on file at the Oregon State Habitat Office.

1.1 Background and Consultation History

NOAA Fisheries received a letter requesting formal ESA section 7 consultation on the Project on March 23, 2004. A complete biological assessment (BA) and EFH assessment for this Project were also received at this time and consultation was initiated. Previously, on March 3, 2004, NOAA Fisheries had conducted a site visit to the Project area.

The BA states that the purpose of the proposed Project is to restore a bank scour area and improve fish habitat. The objective of this Opinion is to determine whether the Project is likely to jeopardize the continued existence of SR steelhead or SR spring/summer Chinook salmon or adversely modify designated critical habitat for SR spring/summer Chinook salmon. The objective of the EFH consultation is to determine whether the Project may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects on EFH resulting from the action.

1.2 Proposed Action

Proposed actions are defined in the Services' consultation regulations (50 CFR 402.02) as "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies. Because the COE proposes to permit a Project that may affect listed resources, it must consult under ESA section 7(a)(2) and MSA section 305(b)(2).

The action area for the proposed Project is between Grande Ronde River miles 118 and 119 in the Upper Grande Ronde River subbasin. The legal description of the Project area is Union County T2S, R39E, Sec. 10, NW 1/4 of NW 1/4.

The objective of the proposed Project is stabilizing an eroding meander bend and reestablishing riparian vegetation for long-term streambank stability. The Project applicant proposes to place rock and gravel at the toe of 550 feet of streambank, use a cellular soil confinement system (Geocell®) with a biodegradable vegetation mat, and place rootwads at 120-foot intervals. The Project area and an additional 4,500 feet of streamside area will be enrolled in the Farm Service Agencies' Conservation Reserve Enhancement Program (CREP) for a minimum of 10 years.

The rock used at the toe of the slope will extend from the channel floor to 1/3 of the bank height, which is 12 to 17 feet at the Project site. A 12-inch gravel filter will be placed under the rock to promote drainage when high flows recede. The Geocell® consists of a honeycomb-shaped structure that is stabilized using soil and willow (*Salix sp.*) plantings as anchor points. After the Geocell® structures are placed, seeded erosion control mats will be pinned in place to provide stabilization of soil until willow and other vegetation become established. Sections of the eroded bank with slopes steeper than 1.5 to 1 will be rebuilt with fill material to bring them to a 1.5 to 1 slope.

Conservation measures proposed as part of the Project include the following:

- All disturbed areas will be seeded with a weed-free native seed mixture.
- A fence will be constructed 35 feet back from the river channel in the Project area to exclude livestock from the planted riparian vegetation.
- All instream work will be conducted during the Oregon Department of Fish and Wildlife (ODFW) in-water work window for the area of July 1 to October 15.
- Heavy equipment will work from the bank as much as practical and will be maintained in a leak-free condition.
- Heavy equipment will be refueled and serviced at least 200 feet from water.
- Straw bales will be used to divert stream flow from the work area while the Project is being constructed.
- A spill plan will be developed with the contractor and spill containment equipment will be on hand at all times.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

SR Steelhead

The SR steelhead evolutionarily significant unit (ESU) was listed as threatened on August 18, 1997 (62 FR43937). Protective regulations for SR steelhead were issued under section 4(d) of

the ESA on July 10, 2000 (65 FR 42422). Biological information for SR steelhead is found in Busby *et al*. (1996). Recent counts of upstream migration at Lower Granite Dam show at least some short-term improvement in the numbers of adults returning to spawn. The Grande Ronde River is one of the principal basins in the Snake River drainage contributing to salmon and steelhead production. Interim abundance targets for SR steelhead are found in Table 1.

Table 1. Interim abundance targets for Snake River steelhead in the Grande Ronde River spawning aggregation (Adapted from NOAA 2003).

ESU/Spawning Aggregations*	Interim Abundance Targets	Interim Productivity Objectives
Snake River Steelhead ESU		Snake River ESU steelhead populations are well below recovery levels. The geometric mean Natural Replacement Rate (NRR) will therefore need to be greater than 1.0.
Grande Ronde		
Lower Grande Ronde	2600	
Joseph Creek	1400	
Middle Fork	2000	
Upper Mainstem	4000	
Imnaha	2700	

*Population in bold is addressed in this Opinion

The SR steelhead ESU contains portions of southeastern Washington, northeastern Oregon, and north/central Idaho. The environmental conditions within this ESU are generally drier and warmer than in other steelhead ESUs. The SR steelhead run is considered a summer run based on adult upstream migration. Adults enter the Columbia River in the summer, migrating upriver until they spawn in the spring between March and May. Runs found in the Grande Ronde system are generally A-run fish, or fish that have spent one year in the ocean.

There are very few annual estimates of steelhead returns throughout the Snake River basin. Returns over the Lower Granite Dam were low during the 1990s, however, run estimates in the Grande Ronde and Imnaha Rivers have improved since then (NOAA 2003). The long-term population trends have remained negative, while the short-term population trends for the ESU have improved in comparison to the time frame analyzed in the last status review (NOAA 2003). The median long-term population growth rate (λ) is 0.998, based on the assumption that only natural origin spawners are returned from wild stock (NOAA 2003). The short-term λ based on the same assumption is 1.013 (NOAA 2003). Assuming that both hatchery and wild fish contribute to the natural production in proportion to their numbers, the long-term λ is 0.733 and short-term λ is 0.753 (NOAA 2003). In spite of the recent increases in numbers, most populations in the ESU with abundance data are still well below the interim abundance targets (Table 1).

Snake River Spring/Summer Chinook

The SR spring/summer Chinook salmon ESU was listed as threatened on April 22, 1992 (57 FR 14653). SR Spring/Summer Chinook enter the Columbia River in late February and early March. The fish hold in the cooler deep pools near spawning areas until the late summer and early fall when they return to their native streams and begin spawning. The eggs incubate through the fall and winter, and emergence begins in the early winter and late spring. Juvenile SR spring/summer Chinook exhibit a stream-type life history. The fish rear for one year in fresh water before they migrate out to the ocean in the spring of their second year. They generally return from the ocean after two or three years. Interim abundance targets for SR Chinook salmon are provided in Table 2.

Table 2. Interim abundance and productivity targets for SR spring/summer Chinook in Oregon (adapted from NOAA 2003).

ESU/Spawning Aggregations*	Interim Abundance Target	Interim Productivity Target
Snake River Spring/Summer Chinook		"For delisting to be considered, the eight-year (approximately two generation) geometric mean cohort replacement rate of a listed species must exceed 1.0 during the eight years before delisting. For spring/summer Chinook salmon, this goal must be met for 80% of the index areas available for natural cohort replacement rate estimation." (Proposed Snake River Recovery Plan; NMFS 1995)
Grande Ronde River	2000	
Imnaha	2500	

*Population in bold is addressed in this Opinion

Several factors have led to decline of SR spring/summer Chinook salmon. Habitat loss from hydroelectric development, habitat degradation from land use activities, and impacts from hatcheries all contribute to the decline of stocks. Recent abundance for the ESU has increased. The geometric mean return of naturally-reproducing spawners from 1997 to 2001 was 3,700, which is well below the interim abundance targets for the ESU. The 2001 run was estimated to be 17,000 naturally-reproducing spawners (NOAA Fisheries 2003). The short-term and long-term productivity estimates (λ) are still well below the interim productivity target for the ESU (NOAA Fisheries 2003). The Grande Ronde and Imnaha Rivers had the greatest increase in λ for the short term. Within the Grande Ronde subbasin, riparian and instream habitat degradation have severely affected SR spring/summer Chinook salmon production potential.

2.1.2 Evaluating the Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps: (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or adversely modify its critical habitat. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the continued existence of the ESA-listed species or result in destruction or adverse modification of their critical habitat, or both.

In conducting analyses of habitat-altering actions, NOAA Fisheries defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat" approach to its analysis (NOAA Fisheries 1999). SR steelhead and SR spring/summer Chinook salmon survival in the wild depends on the proper functioning of certain ecosystem processes, including habitat formation and maintenance. The restoration of improperly functioning habitat to a more properly functioning condition will likely lead to improved survival and recovery these listed ESUs.

2.1.3 Biological Requirements

The first step NOAA Fisheries uses when applying ESA section 7(a)(2) to the listed ESUs considered in this Opinion is to define the species' biological requirements within the action area. Biological requirements are population characteristics necessary for the listed ESUs to survive and recover to naturally-reproducing population sizes, at which time protection under the ESA would become unnecessary. The listed species' biological requirements may be described as characteristics of the habitat, population or both (McElhany *et al.* 2000).

Important features of the adult spawning, juvenile rearing, and adult and migratory habitat for these species are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. (Bjornn and Reiser 1991; NOAA Fisheries 1996; Spence *et al.* 1996). The habitat features that the proposed Project may affect are: Substrate, water quality, water temperature, water velocity, cover/shelter, food, riparian vegetation and safe passage conditions.

2.2.4 Environmental Baseline

The environmental baseline is the effects of past and ongoing human-caused and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The "action area" is defined as "all areas to be affected directly or indirectly by the Federal

action and not merely the immediate area involved in the action" (50 CFR 402.02). The action area for this consultation is the portion of Grande Ronde River from 300 feet upstream from the Project area to the downstream extent of the sediment plume generated by the Project, approximately 1 mile.

Environmental baseline conditions within the action area were evaluated for the subject actions at the watershed scale. The results of this evaluation, based on the "matrix of pathways and indicators" (MPI) described in *Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NOAA Fisheries 1996), follow. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species.

The COE rated physical barriers as "properly functioning." Substrate, pool frequency, pool quality, width to depth ratios, streambank condition, peak/base flows, drainage network increase, road density and location, disturbance history, and, riparian reserves were rated as "functioning at risk." Temperature, sediment, chemical contaminants/nutrients, large woody debris, off-channel habitat, refugia, and floodplain connectivity were rated as "not properly functioning"

NOAA Fisheries believes that the COE's ratings are generally correct, but other information indicates that some habitat indicators may be rated too high. For instance, change in peak/base flow was rated as "functioning at risk;" however, irrigation withdrawals during the summer have reduced base flows considerably. Additionally, historic heavy timber harvest in the upper watersheds of the subbasin in combination with increased drainage network due to road building and channelization of some stream reaches has resulted in increases in peak flows and more frequent floods (Wissmar *et al.* 1994; Forest Service 2004).

In general, the Upper Grande Ronde River subbasin is a highly disturbed riverine system degraded by past and present timber harvest, mining, livestock grazing, flood control, and withdrawal of water for irrigation (Wissmar *et al.* 1994; McIntosh *et al.* 1994; Forest Service 2004). Channelization of the Grande Ronde River in the Project area cut off numerous meanders and decreased habitat complexity.

2.1.5 Effects of the Proposed Action

Effects of the action are defined as: "The direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with the action, that will be added to the environmental baseline" (50 CFR 402.02). Direct effects occur at the Project site and may extend upstream or downstream, based on the potential for impairing the ability of habitat to meet the species' biological requirements. Indirect effects are defined in 50 CFR 402.02 as "those that are caused by the proposed action and are later in time, but still are reasonably certain to occur." They include the effects on listed species or habitat of future activities that are induced by the proposed action and that occur after the action is completed. "Interrelated actions are those that are part of a larger action and depend on the

larger action for their justification" (50 CFR 402.02). "Interdependent actions are those that have no independent utility apart from the action under consideration" (50 CFR 402.02).

Activities Involving In-water Work

The COE determined that the proposed Project is likely to adversely affect SR steelhead and SR spring/summer Chinook salmon. Activities involving in-water and near water construction will cause short-term adverse habitat effects and will result in harassment or harm of SR steelhead juveniles and, potentially, SR Chinook salmon adults. In some years, water temperatures in the Grande Ronde River within the Project area are too high to be suitable for juvenile salmonids, but stream temperatures are highly dependent on ambient air temperature, stream flow, and snow pack remaining in headwater areas. It is reasonably certain that some juvenile SR steelhead and adult SR spring/summer Chinook salmon will be present during the instream work.

The construction activities proposed as part of this Project will require instream operation of heavy machinery and the exposure of large quantities of bare soil. This will produce sediment plumes sufficient to harm or harass ESA-listed anadromous salmonids present during construction activities and potentially during subsequent high flow events. Possible direct effects include mortality from exposure to suspended sediments (turbidity) and contaminants resulting from construction. Potential indirect effects include behavioral changes resulting from elevated turbidity (Sigler *et al.* 1984; Berg and Northcote 1985; Whitman *et al.* 1982, Gregory and Levings 1993) during in-water construction.

Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) have been reported to enhance cover conditions, reduce piscivorus fish/bird predation rates, and improve survival, but elevated TSS have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration. Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). Although fish that remain in turbid waters experience a reduction in predation from piscivorus fish and birds (Gregory and Levings 1998), chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987; Lloyd 1987; Servizi and Martens 1991).

Increased sedimentation may also lead to increased embeddedness of spawning substrates downstream from the Project. Fine, redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996) and reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991). Instream work scheduled for this Project will take place during the ODFW in-water work window for the area of July 1 to October 15. Due to the typically low flows in the Project area during this time, sedimentation rates are expected to be minimized. However, due to the large scale of the Project and the large amount of bare soil to be exposed, some sedimentation of substrates in downstream reaches will occur. Operation of heavy machinery near the stream will disturb riparian

vegetation and could lead to decreased shade, increased water temperatures, and decreased streambank stability until riparian vegetation is re-established.

There is also the potential for fuel or other contaminant spills associated with use of heavy equipment in or near the stream. Operation of back-hoes, excavators, and other equipment requires the use of fuel, lubricants, *etc.*, which, if spilled into the channel of a waterbody or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants, such as fuel, oil, and some hydraulic fluids, contain polycyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause mortailty and acute and chronic sublethal effects on aquatic organisms (Neff 1985). Instream construction will elevate the risk for chemical contamination of the aquatic environment within the action area. Because the potential for chemical contamination will be localized and brief, the probability of direct mortality is negligible. In-water work timing during the preferred in-water work period of July 1 through October 15 will minimize the risk from chemical contamination during in-water work activities.

Habitat Effects of Bank Protection

The proposed action involves placing 550 feet of rock, also referred to as riprap, along the banks of the Grande Ronde River. Root wads and plantings will accompany the riprap. The placement of riprap is known to have adverse effects on stream morphology, fish habitat, and fish populations (Schmetterling *et al.* 2001; Garland *et al.* 2002; U.S. Fish and Wildlife Service 2000).

Schmetterling *et al.* (2001) and Bjornn and Reiser (1991) summarize the importance of natural streamside vegetation to streambank integrity and healthy fish habitat. Placement of rock armoring can preclude the establishment of natural streamside vegetation. Woody plants with complex root systems slow streambank erosion during high flows. The Grande Ronde River, within the Project area, is dependent on woody species like willows, cottonwoods, and alders to hold streambanks together during floods. Streambanks covered with well-rooted, woody vegetation can withstand an average critical sheer stress three times that of streambanks weakly vegetated or covered with grass (Millar and Quick 1998).

Loss of riparian vegetation can lead to less complex aquatic habitat, loss of large woody debris recruitment, and a reduced shade. Riparian vegetation provides habitat for insects that become food for juvenile salmonids. Although large rock can provide some habitat features used by salmonids, such as inter-rock space, evidence is growing that compared to natural banks, fish densities at rocked banks is lower (Schmetterling 2001; U.S. Fish and Wildlife Service 2000). The rock and gravel proposed for use in this Project will provide some interstitial space of sufficient size to be used by salmonids. Use of rock aromoring material along streambanks decreases channel roughness and increases water velocities at the streambank interface. This reduces areas of slower water velocity along the streambank used by juvenile and adult salmonids for sheltering and increases the likelihood of further downstream erosion.

Placing rock armoring can also halt lateral stream channel migration. Alluvial channel patterns adjust by lateral channel migration and longitudinal profile changes (Leopold *et al.* 1964). Extensive channelization, riprapping, and diking, at the levels which have occurred in the Grande Ronde River, increases stream channel gradient. The Grande Ronde River in the Project area flows through lacustrine deposits. In the these fine-grained stream reaches, decreased ability of the channel to migrate laterally can lead to channel incision (Schmetterling *et al.* 2001). In this situation, stream channels are scoured downward rather than laterally and a series of morphological changes may occur. The floodplain may be abandoned, banks may steepen and erode, the water table may drop, and riparian vegetation may change. These morphological adjustments often migrate upstream and are apparent far from where the bank alteration occurred. (Schmetterling *et al.* 2001, Beschta and Platts 1986). These changes are normally detrimental to fish habitat quality (US Fish and Wildlife Service 2000) and are apparent in many areas of the Grande Ronde River basin. The streambank erosion caused by these changes may also encourage additional bank armoring. This can lead to a cycle where placement of bank armoring at one site causes upstream and downstream bank erosion, resulting in the placement of more armoring.

The use of Geocells® and vegetation mats, combined with planting of woody vegetation will allow for establishment of riparian vegetation above the rock armoring. Protecting this area from livestock grazing will accelerate the rate of recovery of riparian vegetation. The establishment of a healthy riparian plant community will provide stream shade and terrestrial insect drop as well as bank stabilization in the Project area. The use of rootwads will provide some overhead cover for fish and will most likely induce scour, providing pockets of pool habitat in the Project area.

In summary, the use of rock armoring will halt channel migration and preclude natural vegetation for the first 4 to 5 feet above the toe of the streambank for 550 feet along the Grande Ronde River. The rock used for armoring might provide some interstial space and cover used by fish, but the value of this cover could be increased by using larger rock limited to the toe of the slope. The seeding and planting efforts, combined with the protection of the area from livestock grazing, will allow for the establishment of a healthy riparian plant community in the Project area.

2.1.6 Cumulative Effects

"Cumulative effects" are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation."

The BA provided by the COE does not specifically identify any cumulative effects, but information provided by other Federal agencies indicates the following cumulatives effect are likely to occur in the action area.

Water withdrawal for irrigation and livestock grazing are likely to occur at present levels for the foreseeable future. Between 1990 and 2000, the population of Union County increased by 3.9%.[1] Thus, NOAA Fisheries assumes that future private and state actions will continue within the action area, but at increasingly higher levels as population density climbs. Most future actions by the State of Oregon are described in the Oregon Plan for Salmon and Watershed measures, which includes a variety of programs designed to benefit salmon and watershed health.

Private timber harvests in Oregon are regulated by the Oregon Forest Practices Act. These regulations for private timber harvest and road building are less restrictive than those on National Forests. Timber harvest on private lands in the Upper Grande Ronde subbasin has generally increased in recent years. BAs from the U.S. Forest Service describe the adverse cumulative effects from proposed private timber harvests as high. One BA states, "The lack of complete regulations and enforcement of existing regulations on private land timber harvests increases the likelihood of cumulative adverse effects." (US Forest Service 2004)

2.1.7 Conclusion

NOAA Fisheries determined that, when the effects of the subject action addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of SR steelhead and SR spring/summer Chinook salmon, nor will the Project will result in adverse modification of designated critical habitat for SR spring/summer Chinook salmon.

NOAA Fisheries' conclusions are based on the following considerations: (1) All instream work will occur during the ODFW in-water work window for this area of July 1 to October 15, and instream work will be limited to the amount described in the BA; (2) use of rock will be limited to the lower 1/3 of bank toe; and (3) the Project involves significant revegetation and protection efforts that will result in establishment of a healthy riparian plant community in the Project area. Thus, the proposed action is not expected to impair currently properly functioning habitats or appreciably reduce the functioning of already impaired habitats. The Project will result in some slowing of the short-term progress of impaired channel conditions toward proper functioning condition by slowing or halting natural channel migration, but will result in the establishment of a healthy riparian plant community in the Project area. Therefore, the proposed Project is not expected to retard the long-term progress of impaired habitat toward proper functioning condition essential to the long-term survival and recovery at the population and ESU scales.

[1] U.S. Census Bureau, State and County Quickfacts, Union County, Oregon. Available at: http://quickfacts.census.govl

2.1.8 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is likely to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operation causing such take must cease, pending conclusion of the reinitiated consultation. To reinitiate consultation, contact the NOAA Fisheries Habitat Conservation Division, Oregon State Habitat Office, and refer to NOAA Fisheries No.: 2004/00321.

2.2 Incidental Take Statement

The ESA at section 9 [16 USC 1538] prohibits take of endangered species. The prohibition of take is extended to threatened anadromous salmonids by section 4(d) rule [50 CFR 223.203]. Take is defined by the statute as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" [16 USC 1532(19)]. Harm is defined by regulation as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavior patterns, including, breeding, spawning, rearing, migrating, feeding or sheltering" [50 CFR 222.102]. Harass is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering" [50 CFR 17.3]. Incidental take is defined as "takings that result from, but are not the purpose of, carrying out an otherwise lawful activity conducted by the Federal agency or applicant" [50 CFR 402.02]. The ESA at section 7(o)(2) removes the prohibition from any incidental taking that is in compliance with the terms and conditions specified in a section 7(b)(4) incidental take statement [16 USC 1536].

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

Instream work is expected to cause incidental take of juvenile steelhead and SR spring/summer Chinook salmon, and adult SR spring/summer Chinook salmon. NOAA Fisheries is reasonably certain the incidental take described here will occur because: (1) The listed species are known to occur in the action area; and (2) the proposed action is likely to cause adverse effects that are significant enough to cause death or injury, or impair feeding, breeding, migrating, or sheltering for the listed species.

Some level of incidental take is expected to result from injury or death of juvenile SR steelhead and adult SR spring/summer Chinook salmon during instream work. The temporary increase in sediment and turbidity is expected to cause fish to avoid disturbed areas of the stream, both within and downstream from the Project area. Incidental take in the form of death or sublethal effects can occur if toxicants are introduced into the water. Incidental take in the form of harm is likely from riparian disturbance and other adverse habitat effects caused by the proposed Project. This incidental take will be reduced as newly-planted riparian vegetation is established and loose soil is stabilized.

Because of the inherent biological characteristics of aquatic species such as SR steelhead and SR spring/summer Chinook salmon, take attributable to this action cannot be quantified as a number of fish harmed, harassed, or killed. In instances such as these, NOAA Fisheries designates a quantified habitat surrogate. The amount of habitat to be disturbed is an area approximately 600 feet by 20 feet of disturbed streambank at the Project site. Take caused by the proposed action could continue downstream to the extent of the turbidity plume generated; approximately one mile.

In addition, incidental take is expected if a work area isolation and fish relocation operation is conducted, as required by the terms and conditions of this incidental take statement. The number of fish captured may not exceed 20 juvenile and one adult SR steelhead or SR spring/summer Chinook salmon combined. The number of fish killed by the work area isolation and relocation should not exceed five juveniles and one adult.

This exemption from the take prohibition includes only take caused by the proposed action as described in the BA and above, within the action area as defined in this Opinion for a period of five years after the signature date of this document.

2.2.2 Effect of Take

In this Opinion, NOAA Fisheries determines that this level of anticipated take is not likely to result in jeopardy to SR steelhead or SR spring/summer Chinook.

2.2.3 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize the impact of incidental taking on the above species. The COE, with respect to their proposed activities addressed in this Opinion, shall:

1. Avoid or minimize the amount and extent of take resulting from general construction activities, riparian disturbance, and in-water work required to complete the proposed Project addressed in this Opinion.

2. Avoid or minimize the likelihood of incidental take from contaminant leaks and spills associated with the use of heavy equipment near and within watercourses.

3. Minimize the amount of take resulting from harm caused by the habitat effects of the proposed Project by altering the Project design to reduce the adverse habitat effects.

4. Monitor the effects of the proposed action to determine the Project's actual effects on listed fish (50 CFR 402.14 (i)(3)). Monitoring should detect adverse effects of the proposed action, assess the actual levels of incidental take in comparison with anticipated incidental take documented in the Opinion, and detect circumstances where the level of incidental take is exceeded.

2.3.4 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the action must be implemented in compliance with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1 (general construction, riparian disturbance, and in-water work), the COE shall ensure that:

    a. Minimum area. Confine construction impacts to the minimum area necessary to complete the Project.
    b. Timing of in-water work. Work below the bankfull elevation[2] will be completed using the most recent ODFW preferred in-water work period, presently July 1 to October 15, as appropriate for the Project area.
    c. Cessation of work. Cease Project operations under high flow conditions that may result in inundation of the Project area, except for efforts to avoid or minimize resource damage.
    d. Preconstruction activity. Complete the following actions before significant[3] alteration of the Project area.
        i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
        ii. Emergency erosion controls. Ensure that silt fences and straw bales[4] for emergency erosion control are on site.

[2] 'Bankfull elevation' means the bank height inundated by a 1.5 to 2-year average recurrence interval and may be estimated by morphological features such average bank height, scour lines and vegetation limits.

[3] 'Significant' means an effect can be meaningfully measured, detected or evaluated.

[4] When available, certified weed-free straw or hay bales will be used to prevent introduction of noxious weeds.

iii. Temporary erosion controls. All temporary erosion controls will be in place and appropriately installed downslope from Project activity within the riparian area until site restoration is complete.

iv. General erosion control. Practices will be carried out to prevent erosion and sedimentation associated with access roads, stream crossings, drilling sites, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations, staging areas, and roads being decommissioned.

v. Inspection of erosion controls. During construction, monitor instream turbidity and inspect all erosion controls daily during the rainy season and weekly during the dry season, or more often as necessary, to ensure the erosion controls are working adequately.[5]

(1) If monitoring or inspection shows that the erosion controls are ineffective, mobilize work crews immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Remove sediment from erosion controls once it has reached 1/3 of the exposed height of the control.

e. Heavy Equipment. When heavy equipment will be used, the equipment selected will have the least adverse effects on the environment (*e.g.*, minimally-sized, low ground pressure equipment).

f. Site preparation. Conserve native materials for site restoration.

i. If possible, leave native materials where they are found.

ii. If materials are moved, damaged or destroyed, replace them with a functional equivalent during site restoration.

iii. Stockpile any large wood,[6] native vegetation, weed-free topsoil, and native channel material displaced by construction for use during site restoration.

g. Earthwork. Complete earthwork (including drilling, excavation, dredging, filling and compacting) as quickly as possible.

i. Site stabilization. Stabilize all disturbed areas following any break in work unless construction will resume within four days.

ii. Source of materials. Obtain boulders, rock, woody materials and other natural construction materials used for the Project outside the riparian area.

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[5] 'Working adequately' means that Project activities do not increase ambient stream turbidity by more than 10% above background 100 feet below the discharge, when measured relative to a control point immediately upstream from the turbidity causing activity.

[6] For purposes of this Opinion only, 'large wood' means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull channel width of the stream in which the wood occurs. See Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

iii. Excavated material. Remove all excavated material for the new channel from the 100-year floodplain.

h. Site restoration. Site restoration and cleanup, including protection of bare earth by seeding, planting, mulching and fertilizing, to be done in the following manner:

i. All areas damaged by the construction activities will be restored to pre-work conditions including restoration of original streambank lines, and contours.

ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with native herbaceous seeding and native woody vegetation as soon as possible during the appropriate planting season (immediately for seeding and the following fall or spring for woody plantings). On cut slopes steeper than 1-to-2, a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, consider using hydro-mulch applied at 1.5 times the normal rate.

iii. Disturbed areas will be planted with native vegetation specific to the Project vicinity or region, and will be a diverse assemblage of woody and herbaceous species.

iv. All plantings and seeding will be completed before July 1 of the following year.

v. Plantings in areas disturbed by construction activities will achieve an 80% survival success after three years.

(1) If success standard has not been achieved after three years, the COE will develop an alternative plan, address temporal loss of function and remedy the issue.

(2) Plant establishment monitoring will continue and plans will be submitted to NOAA Fisheries until site restoration success has been achieved.

i. Pesticides and fertilizer. Do not apply fertilizer, herbicides, or other pesticides within 200 feet of any stream channel.

j. Isolation of in-water work area. If adult or juvenile SR steelhead or SR spring/summer Chinook salmon are reasonably certain to be present, completely isolate the work area from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials, unless otherwise approved in writing by NOAA Fisheries.

k. Capture and release. Before and intermittently during pumping to isolate an in-water work area, attempt to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.

i. The entire capture and release operation must be conducted or supervised by a fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish.

ii. Do not electrofish if water temperatures exceed 18ºC.

iii. If electrofishing equipment is used to capture fish, comply with NOAA Fisheries' electrofishing guidelines.[7]

iv. Handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.

v. Transport fish in aerated buckets or tanks.

vi. Release fish into a safe release site as quickly as possible, and as near as possible to capture sites.

vii. Do not transfer ESA-listed fish to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.

viii. Obtain all other Federal, state, and local permits necessary to conduct the capture and release activity.

ix. Allow NOAA Fisheries or its designated representative to accompany the capture team during the capture and release activity, and to inspect the team's capture and release records and facilities.

2. To implement reasonable and prudent measure #2 (pollution control), the COE shall ensure that:

a. Pollution Control Plan. Prepare and carry out a pollution and erosion control plan to prevent pollution caused by surveying or construction operations. The plan must be available for inspection on request by NOAA Fisheries.

i. Plan Contents. The pollution and erosion control plan will contain the pertinent elements listed below and meet requirements of all applicable laws and regulations.

(1) The name and address of the party(s) responsible for accomplishment of the pollution and erosion control plan.

(2) A description of any regulated or hazardous products or materials that will be used for the Project, including procedures for inventory, storage, handling, and monitoring.

(3) A spill containment and control plan with notification procedures, specific cleanup and disposal instructions for different products, quick response containment and cleanup measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

(4) Practices will be carried out to prevent construction debris from dropping into any stream or waterbody, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.

ii. Vehicle and material staging. Store construction materials, and fuel, operate, maintain and store vehicles as follows.

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[7] National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

(1) To reduce the staging area and potential for contamination, ensure that only enough supplies and equipment to complete a specific job will be stored on site.

(2) Complete vehicle staging, cleaning, maintenance, refueling, and fuel storage in a vehicle staging area outside riparian areas, unless otherwise approved in writing by NOAA Fisheries.

(3) Inspect all vehicles operated within riparian areas daily for fluid leaks before leaving the vehicle staging area. Repair any leaks detected in the vehicle staging area before the vehicle resumes operation. Document inspections in a record that is available for review on request by NOAA Fisheries.

b. Construction discharge water. Treat all discharge water created by construction (*e.g.*, pumping for work area isolation, vehicle wash water) as follows.

i. Water quality. Design, build and maintain facilities to collect and treat all construction discharge water using the best available technology applicable to site conditions. Provide treatment to remove debris, nutrients, sediment, petroleum hydrocarbons, metals, and other pollutants likely to be present.

ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities may not exceed 4 feet per second, and the maximum size of any aperture may not exceed 1 inch.

iii. Pollutants. Do not allow pollutants, contaminated water, or silt to contact any wetland or the two-year floodplain.

3. To implement reasonable and prudent measure #3 (Project design), the COE shall ensure that:

a. Use of rock armoring. One layer of large rock, 350 metric (700 pound) or larger, can be used to stabilize the lower 1/3 of the toe of the slope. No smaller rock or fill may be used except native soil. Begin revegetation efforts directly above this rock layer.

b. Large wood. Increase the number of rootwads used in the Project. Incorporate a minimum of eight rootwads as opposed to the four that are proposed.

4. To implement reasonable and prudent measure #4 (monitoring), the COE shall:

a. Reporting. Within one year of Project completion, the COE will submit a monitoring report to NOAA Fisheries describing the COE's success in meeting the terms and conditions contained in this Opinion. Include the following information.

i. Project identification

(1) Project name.

(2) Type of activity.

(3) Project location, by 6th field HUCs and by latitude and longitude as determined from the appropriate USGS 7-minute quadrangle map.
(4) COE contact person.
(5) Starting and ending dates for work completed.

ii. Photo documentation. Photos of habitat conditions at the Project and any compensation site(s), before, during, and after Project completion.[8]
(1) Include general views and close-ups showing details of the Project and Project area, including pre- and post- construction.
(2) Label each photo with date, time, Project name, photographer's name, and a comment about the subject.

iii. Other data. Additional Project-specific data, as appropriate.
(1) Work cessation. Dates work ceased due to high flows, if any.
(2) Fish screen. Evidence of compliance with NOAA Fisheries' fish screen criteria.
(3) Pollution control. A summary of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort.
(4) Site preparation.
(a) Total cleared area – riparian and upland.
(b) Total new impervious area.
(5) Streambank protection.
(a) Type and amount of materials used.
(b) Project size – one bank or two, width and linear feet.
(6) Site restoration. Photo or other documentation that site restoration performance standards were met.

b. Effectiveness monitoring. Gather any other data or analyses the COE deems necessary or helpful to complete an assessment of habitat trends in stream and riparian conditions as a result of this Project.

c. Lethal take. If a sick, injured, or dead specimen of a threatened or endangered species is found, the finder must notify the Vancouver Field Office of NOAA Fisheries Law Enforcement at (360) 418-4246. The finder must take care in handling sick or injured specimens to ensure effective treatment, and in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

d. Report submission. Submit a copy of the report to the Oregon State Habitat Office of NOAA Fisheries.

[8] Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the Project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the Project area, and upstream and downstream from the Project.

Oregon State Director
Habitat Conservation Division
National Marine Fisheries Service
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3. MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

3.1 Background

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that would adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of EFH: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;

- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;

- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.2 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O.gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other waterbodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*e.g.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.3 Proposed Action

The proposed action is detailed above in section 1.2 of the ESA portion of this Opinion. The action area is within the Upper Grande Ronde River subbasin. This area has been designated as EFH for various life stages of Chinook and coho salmon.

3.4 Effects of Proposed Action

The effects on Chinook and coho salmon habitat are the same as those for SR steelhead and SR spring/summer Chinook, and are described in detail in section 2.2.1 of this document. The proposed action may result in short-term adverse effects on a variety of habitat parameters. These adverse effects are:

1. Riparian disturbance from accessing construction area and construction activities performed from the bank.

2. Increased sedimentation from instream construction activities.

3.5 Conclusion

NOAA Fisheries believes that the proposed action will adversely affect EFH for Chinook salmon and coho salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the applicant and the terms and conditions contained in section 2.3.4, except those relating to work timing, isolation of the in-water work area, fish salvage (capture and release), and the disposition of any individual fish killed or injured during completion of the project are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.7 Statutory Response Requirement

The MSA (section 305(b)) and 50 CFR 600.920(j) requires the COE to provide a written response to NOAA Fisheries' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NOAA Fisheries' conservation recommendations, the COE shall explain its reasons for not following the recommendations.

3.8 Supplemental Consultation

The COE must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920). This consultation expires 5 years after the signature date of this document. Any activities not completed by then will require additional consultation.

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